MSD/Foundry Researchers Recognized by *Scientific American* and *Discover*

Two Materials Sciences Division scientists have been recognized by *Scientific American* and *Discover* magazines for publishing the top 50 and 100 scientific accomplishments in 2007, respectively. Peidong Yang was named to *Scientific American*'s list for his development of a technique by which silicon nanowires can be embedded in living cells, with no apparent harm to the cells. Xiang Zhang made *Discover*'s list with his development of a "hyperlens" that makes it possible to study nano-sized objects with visible light.

Peidong Yang was recognized, along with Foundry user Bruce Conklin of the Gladstone Institute of Cardiovascular Disease, University of California at San Francisco, for his DOE-supported work on the synthesis, characterization and use of silicon nanowires to the control of the development of stem cells. The goal of their research is to induce embryonic stem cells to become, for example, skin cells or some other type of differentiated tissue. *In vivo*, this is a complex process, involving effects of the cell's environment on its pattern of gene-controlled protein production. *Scientific American* noted the researchers' demonstration of a new way to deliver the environmental signals by growing stem cells embedded with nanoscale silicon wires. In a quote from the article, "Yang and Conklin envision the technique being used to guide the differentiation of stem cells into specific tissue types through electrical pulses or chemicals transmitted via nanowires."

Xiang Zhang was recognized for his work in "meta-materials" which can be used to make unique optical components, such as lenses with imaging resolution far beyond the "diffraction limit" of normal materials. In recognizing Zhang's new hyperlens, *Discover* noted the quest to "peek" at extremely small objects such as molecular machinery. Because the hyperlens, made of silver and aluminum oxide, is able to capture, preserve and magnify the minute details contained in evanescent light waves, researchers are now one major step closer to the goal of nanoscale optical imaging.

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